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## **Extraction of 16th Century Calender Fragments**

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# EXTRACTION OF 16<sup>th</sup> CENTURY CALENDAR FRAGMENTS

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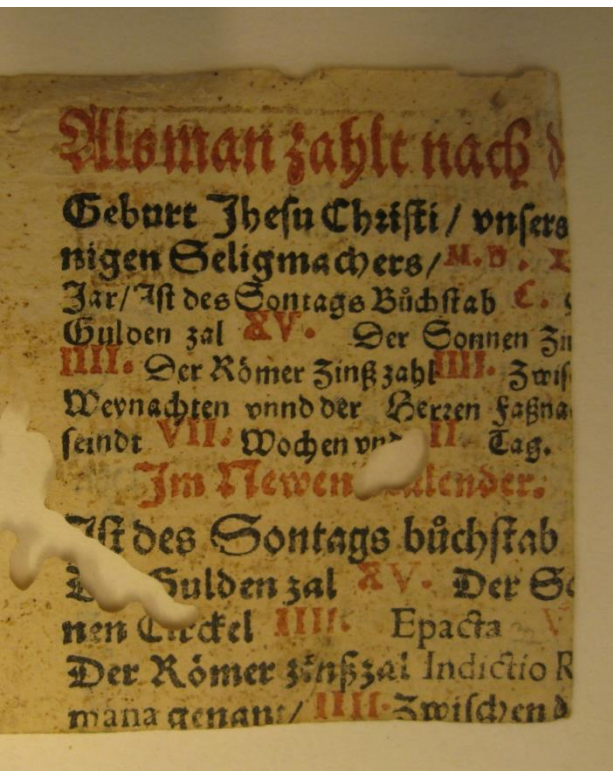
## BACKGROUND

**FRAGMENTS: A HIDDEN TREASURE**  
Pieces of rare texts, such as medieval manuscripts, may be found as part of the binding of 16<sup>th</sup> and 17<sup>th</sup> century books. Such pieces are termed “fragments”. Often, these fragments will be extremely well preserved and may provide hitherto unknown information to medieval historians.

**RARE AND OLD CALENDARS**  
Calendars made in the medieval and early modern period were made for perpetual use. This was achieved with the so-called repeating dominical letters next to the date. This would be used in combination with a table to establish the day of the week. Calendars could also be used to determine the astrologically correct time for bloodletting. Finding fragments of such calendars is very rare.

## PURPOSE AND HYPOTHESIS

A search through the 16<sup>th</sup> and 17<sup>th</sup> century volumes in the Diocese Library of Funen, held at the University Library of Southern Denmark, led to the finding of visible calendar fragments in the binding of a 1580 Latin volume on civil law. The use of German language on these fragments and the depiction of astronomical/astrological symbols made it relevant to look for a German astronomer. The working hypothesis was that this could be a 15<sup>th</sup> century calendar either by the German mathematician and astronomer Johannes Müller von Königsberg, also called Regiomontanus (1436-1476), or the Austrian astronomer, mathematician and early instrument maker, Johannes von Gmunden (ca. 1380-1442). It soon became clear that the copious material inside the binding of the 1580 volume could be very rare, if not unique. For that reason, an investigation into the possibility of removing/extracting the fragments and in the process restoring the 1580 book was initiated in collaboration with Odense City Museums and conservator Pia Irene Hansen. Subsequently, the extraction was launched in March 2017.



Dominical letters (Sontags Buchstab) were assigned to every year in the calendar and were used to describe the distribution of Sundays (lat. *dominica*). Together with the knowledge of the lunar phases, the dominical letters were used to calculate the date of Easter.

## MATERIALS AND METHODS

The extraction of the calendar fragments requires a careful dissolvment of the old bookbinder’s glue and a meticulous detachment of each calendar leaf. For documentation, each leaf is being photographed by the conservator of Odense City Museums. The 1580 book has an outer cover of parchment made from a reused and possibly medieval manuscript leaf. The inside of this parchment, containing writing, is being photographed as well. The calendar fragments are made from paper with woodcut illustrations. A well preserved title leaf makes it possible to easily identify the fragments, whereas other fragments may require extensive use of Big Data and other forms of analysis in order to be identified. Usually, the university library prefers not to remove the fragments from their “fragment carriers”. In order to read fragments that are only partially visible or invisible, x-ray technology may be deployed at the Cultural Heritage & Archaeometric Research Team, SDU. Upon finding medieval manuscript fragments in the university library’s special collections, scholars at the Centre for Medieval Literature are consulted. In most cases, digital pictures of the finds will circulate in the international community of medieval scholars. Thousands of 16<sup>th</sup> and 17<sup>th</sup> Century books are stored in the University Library of Southern Denmark. One out of five of these books is expected to contain medieval manuscript fragments or fragments of rare prints, e.g. incunabula.

## IMAGES

**TITLE LEAF FRAGMENT OF:**  
**ALT VNND NEW SCHREIBKALENDER / DER PRACTICA / VNND VEREHUNG DER FEST / AUFF DAS JAHR NACH CHRISTI GEBURT / M. D. LXXXXI. [1591]**

**Author: Lucas Bathodius (c. 1541 - c. 1598), doctor and astronomer/astrologer in Pfalzburgh (Phalsbourg)**  
**Publisher: Nicolaus Waldt am Kornmarck, Strasburg (Strasbourg) 1590**

**The “fragment carrier”:** A relatively small book, bound in parchment, containing a copy of *Instivtiones Ivris Civilis* by Theophilus [et alii], Lyon 1580. Format: 24mo

**Fragments in the binding:** 21 calendar fragments were fitted in the binding of the book. The fragments were part of the perms’ padding. Format: 16mo

**The Zodiac Man:** In the middle ages and early modern period, astrological signs were seen as connected with different parts of the human body. This was in accordance with the ancient belief of the microcosm connected with the macrocosm.

## RESULTS

The extraction of the calendar fragments made it possible to initiate further analysis, and at the same time make rare material available for historians. In the process, it soon became clear that the German astronomers Regiomontanus and Johannes von Gmunden were not the authors of the calendar in question. As documented by the remains of the calendar’s title leaf, the author is **Lucas Bathodius (the younger)** of Phalsbourg. He was a follower of the works of Renaissance philosopher, physician and astronomer, Paracelsus (Theophrastus Bombast von Hohenheim, 1493-1541). Lucas Bathodius was famous for his astrological and prognostic works in the second half of the 16<sup>th</sup> Century, using the following epithets: „**Medicus & Astronomiae Studiosus zu Pfaltzburg**“ & „**Fürstlicher Pfaltzgräfflicher Medicus zu Simmern**“.



## CONCLUSIONS

The extraction of the rare **Schreibkalender** fragments clearly demonstrates the great potential of finding other well preserved astronomical/astrological works inside the binding of 16<sup>th</sup> and 17<sup>th</sup> Century books. In this case, the 1580 book seems to have been repaired, possibly shortly after 1590, by using the calendar pages to stiffen the perms. A bookbinder’s repair would explain why the fragments are younger than their carrier. From a historical perspective, the university library fragments may shed new light upon the details of Lucas Bathodius’ calendar production (as far as we know, starting 1584 for the year 1585) at the publisher Nicolaus Waldt am Kornmarck in Strasbourg. The fragments may constitute the oldest known version in existence of the Schreibkalender in the 16mo format. Lucas Bathodius Argentinensis provided the users of his work with a practical tool for writing daily observations and/or noting events of cyclical importance. One can assume, that such calendars were published for the literate elite in society. In particular, the prognostic and medical elements of the calendar were meant to guide the reader and help them take necessary precautions throughout the year of 1591.

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